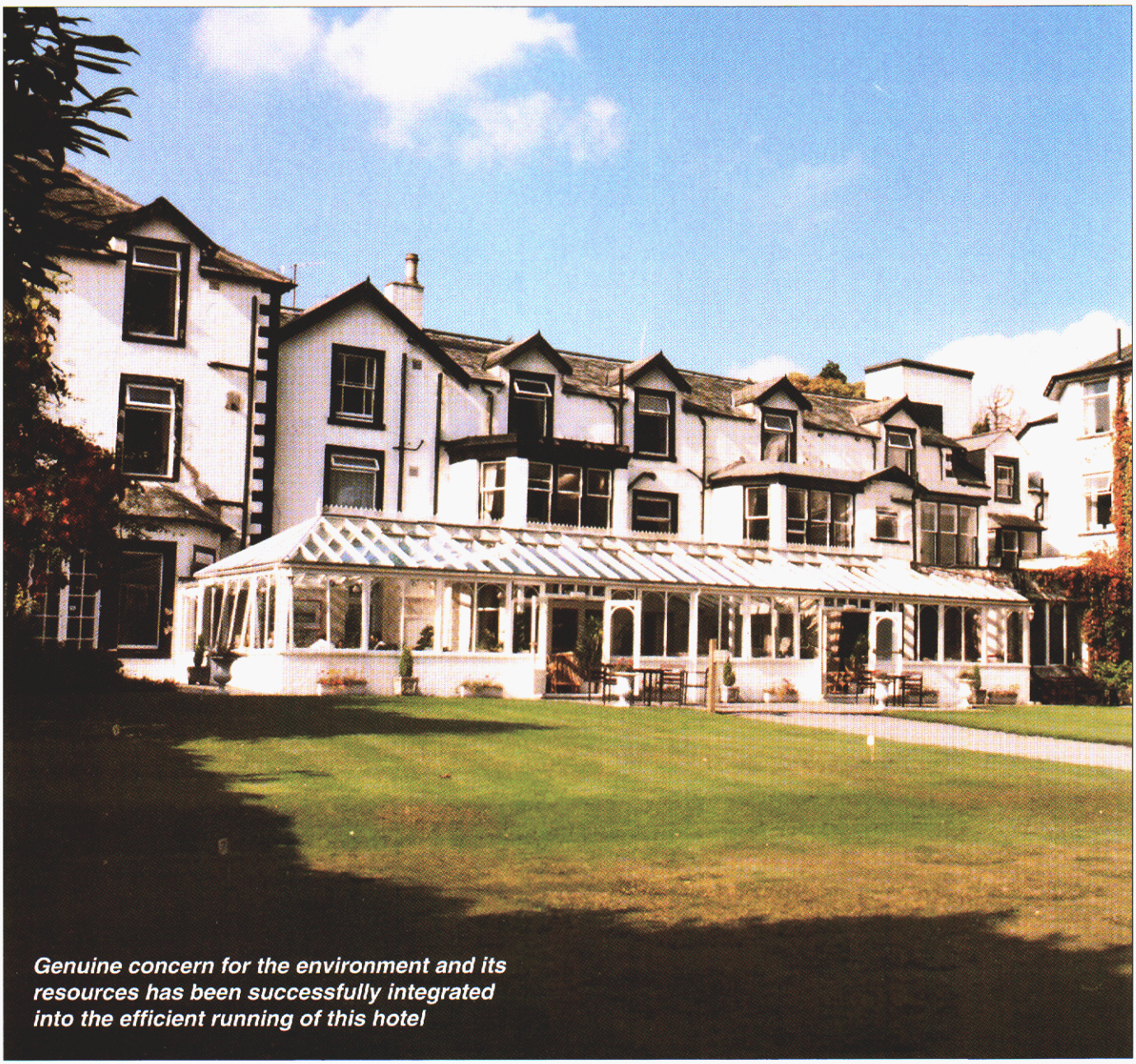
# Case Study 297

## The Derwentwater Hotel, Keswick, United Kingdom



*Genuine concern for the environment and its resources has been successfully integrated into the efficient running of this hotel*

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# THE DERWENTWATER HOTEL

## A CASE STUDY IN ENERGY AND ENVIRONMENTAL MANAGEMENT

## Introduction

The Derwentwater is an independently owned and managed three-star rated hotel in the Lake District, an area of outstanding natural beauty in north-west England.

The main building is a three-storey, 19th century construction of traditional local stone, with rendered elevations beneath a slate roof. It contains 52 bedrooms, all with en suite bathrooms, and a restaurant, bar and public rooms. A large conservatory has been added overlooking the lake and the hills beyond.

Near to the main building stands Derwentwater Tower, a former country house of the same general age and construction, but with natural stone elevations. This has been converted to provide 31 self-catering rooms with en suite facilities.

Most of the business is leisure based and comprises short breaks and tour groups. Annual turnover is around £1.2 million.

**Energy and environmental management**

Managing director Ian Aston takes a close interest in the protection of local wildlife and habitat. Under his enthusiastic leadership, staff at the Derwentwater are fully committed to the adoption of good practice in environmental management, including using energy efficiently. Energy efficient housekeeping practices help to reduce emissions of greenhouse gases and to lessen environmental pollution, as well as providing economic benefits for the hotel owners.

Unspoilt lakes and hills fill the countryside around the Derwentwater, and the hotel grounds include natural lakeside wetlands which Ian Aston wishes to promote as a nature reserve. The sympathetic treatment planned for these natural resources encouraged him to introduce complementary actions within the hotel to protect the wider environment.

With the support of a leading UK catering and hotel-keeping journal, a wide-ranging environmental audit was carried out at the hotel by consultants specialising in 'green' issues. More than 100 operating practices to improve energy efficiency and waste management were identified. Marketing opportunities such as conferences and short breaks with ecological or environmental themes were also highlighted.

Measures recommended by the audit included:

- energy management and good housekeeping activities to prevent energy and water being used unnecessarily
- investment in energy efficient technologies, such as energy efficient lighting, improved heating system controls, and roof insulation
- waste management, including reducing the quantity of waste produced, reusing items where possible and recycling of paper, glass, plastics and organic waste
- landscape management and nature conservation in the hotel grounds
- improving communications with guests, the local council (for recycling etc), local 'green' allies (Wildlife Trust, National Trust, etc) and the hotel trade.

The Derwentwater has identified that its 'green' credentials are a marketing opportunity which can give it an edge over competitors. A simple statement of its aims and policies, reproduced on the back page, has been published for guests and staff.

## Restaurant, bar and public areas

The Deer Leap restaurant accommodates about 100 covers, and features à la carte and table d'hôte menus. These are planned to include fresh local produce wherever possible. This improves the quality of food while reducing transport costs and associated environmental pollution.

Other facilities include a licensed bar, lounge, conference room, morning room, and games room. The conservatory, with its large areas of glass, is an inherently inefficient structure and suffers from high heat losses in winter. It is, however, double glazed which helps to limit the size of these heat losses.

*Deer Leap restaurant*

**Energy management in public areas**

- Radiators served by the central boiler are all fitted with thermostatic valves.
- Decor is predominantly light in colour to enhance reflection and reduce the need for artificial lighting.
- Lights are switched off when the restaurant is not in use.
- Compact fluorescent lamps have been installed in corridors, stairs, landings and WCs.
- Urinal cisterns are fitted with devices that reduce unnecessary flushing.

## Back of house offices

Back of house offices have only limited consumption of energy - for lighting, heating and the power requirements of small business computers. Supplementary electric heaters have been used in the past, but their use is discouraged.

**Waste management**

- Paper and cardboard are sorted and taken for recycling.
- Staff collect used cans and stamps for good causes.
- The policy is to purchase recycled paper where appropriate.

## Kitchens

Cooking in the main kitchen is by conventional four-burner commercial hobs and ovens fuelled by gas. Electrical equipment includes a microwave oven, deep fat fryer and multi-slice toaster. Refrigeration comprises two walk-in chillers, a cooler, wine refrigerator and an ice-cream freezer.

Natural lighting through windows and skylights is supplemented by fluorescent lights.

There are four extractor fans. The feasibility of adding a heat recovery unit to the extractor vent was investigated, but not considered viable.

**Catering management**

- The walk-in chiller has an alarm warning that the door is left open.
- A policy to turn off all rings when not in use is rigorously enforced by the chef.
- Kitchen equipment is maintained regularly.
- Water to the kitchen is metered and its use is monitored.
- The dishwasher is operated only when full.
- Food is cooked to order, minimising waste.
- Fryer fat is collected under a fat collection scheme.
- Glass, plastics and metals are recycled.
- Bulk supply of environmentally friendly cleaning materials, in refillable containers, are used.

## Guest bedrooms

There are 52 bedrooms in the main hotel and 31 in the Tower. In the main hotel, a programme of refurbishment includes upgrading the old sash windows by replacing them with modern double glazed units to reduce heat loss.

*Guest bedroom*

Heating generally is by radiators served by central boilers and controlled by thermostatic valves. Heating in the Tower is by electric night storage heaters. While normally this would be a relatively inefficient form of heating, the Tower is unoccupied during the colder months of the year.

Each bedroom has a range of electrical items for guest comfort including hair dryer, kettle, trouser press and television.

### Energy management in guest rooms

- Radiators served by boilers have thermostatic valves.
- Rooms heated by electricity have their electrical heaters switched on and off manually according to occupancy.
- Energy efficient lights have been installed.
- Guest room kettles are of small capacity - to prevent large volumes of water being heated when only one or two cupfuls are required.
- Electrical equipment in the guest rooms is switched off by chambermaids after the rooms are cleaned.
- Most en suite bathrooms are fitted with showers.
- WC cisterns with reduced water capacity are under consideration.

### Additional suggestions for a highly energy efficient 'green' guest room

- Very high standards of roof and wall insulation, double or triple glazing and draughtstripped openable windows with thick curtains, all to conserve energy.
- Thermostatically controlled heating - including simple instructions for guests on how to control the heating to meet their own needs for comfort in an efficient manner.
- All electrical equipment to be energy efficient.
- Advice to guests to switch off televisions at night, and not leave them on stand-by settings.
- Dual flush WC and low-flow shower heads.
- Limited quantity of water to be used by chambermaids when cleaning rooms.

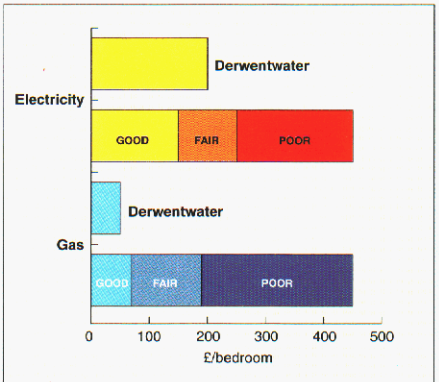
## Central heating and hot water

Heating of the main hotel is by low pressure hot water radiators served by gas-fired boilers.

There are three gas-fired boilers, each serving individual zones of the hotel. This means that the heating system can adapt to the unique requirements of each zone, giving better temperature control and more efficient use of energy. The boiler serving an unoccupied zone can be shut down completely, saving on standing losses. This arrangement of boilers provides more flexibility for maintenance and reduces the impact of boiler plant failure.

Hot water for guest rooms, catering and other domestic uses is provided by two separate gas-fired boilers, together with one of the central heating boilers which has dual output. This is more efficient than having the larger space heating boilers operating at low loads, and they can be shut down during the summer months.

Control of the heating and hot water systems is by time clocks, thermostatic radiator valves and pipework valves.




Gas and electricity costs for 1994 in £/bedroom compared with the UK norms published in the Energy Efficiency Office's Energy Consumption Guide 36. Gas costs are in the 'good' category, while electricity costs are 'fair'.

### Heating and hot water management

- Co-ordination between room bookings and zone heating allows one or more zones to be taken out of service at times of low occupancy.
- Boilers are maintained and serviced regularly.
- The largest boiler has recently been overhauled and a condenser added to increase efficiency.
- Boilers and heating pipework are insulated.
- Time switch settings are checked periodically.
- Lofts are insulated with 200 mm of glass fibre insulation.
- Advantageous gas tariffs have been negotiated.
- Fuel costs and consumption are monitored monthly and analysed using a computer spreadsheet.
- Hot water is stored at 60°C and tanks and pipework are insulated.
- Water meter readings are taken regularly.

## Conclusions

Energy and environmental management have become established as part of the culture of the Derwentwater Hotel, thanks largely to the enthusiasm and enterprise of senior management.

The hotel's commitment to saving energy and protecting the environment is reflected in its published policy statement, "Growing Greener", which it communicates to guests and brings to the attention of all staff as part of their induction course. The environmental practices at the hotel are featured in the International Hotels Environment Initiative's* video 'Going Green Makes Cents'.

Substantial improvements have been carried out at the hotel in recent years and, where possible, this work has incorporated energy efficient features. The environmental audit carried out in 1993 identified further potential savings of £6000 to £7000 per annum in energy and water costs through investment in energy efficient lights, improved taps and showers, insulation, and controls. Many of the audit's recommendations have been implemented. The hotel has cut its energy bill by 10%, saving £4000 per annum on energy costs. It hopes to increase this amount over the coming years.

The audit also identified the potential for developing marketing opportunities, such as conferences and short breaks, in tandem with the hotel's commitment to the environment and its location in an area of outstanding natural beauty.

This Case Study demonstrates how genuine concern for the environment and its resources has been successfully integrated into the efficient running of a hotel, for the benefit of everyone concerned - guests, staff and owners.

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## The Derwentwater's energy and environmental policy - as set out for guests

# GROWING GREENER

Here, at the Derwentwater, we are very conscious of the need to follow better environmental practises. The Hotel has undergone a professional review of its policies to ensure that we know how energy is best conserved.

As a result, the following are just some of our efforts so far:

We recycle glass, waste cooking oil and paper. All aluminium cans are recycled in aid of Guide Dogs for the Blind and all waste food is taken away for animal feed.

We have introduced low energy lighting where possible and thermostats have been fitted to the Hotel's heating and hot water system.

In the restaurant, you will notice that we favour the more traditional style of food presentation and no longer use individual portion control packaging for, milk, preserves, yoghurt and cereals. This saves on consumption of both energy and materials.

In the bathrooms, individual soaps and shampoos have given way to a dispenser for hair and body shampoo. This prevents us having to throw away thousands of plastic bottles each year which have been going to increasingly scarce landfill sites.

Throughout the Hotel, environmentally conscious paper is used. This is not just office stationery but napkins, facial tissues and toilet tissue.

Again to save packaging, cleaning materials are all bought in bulk, bio-degradable containers and syphoned into smaller, re-usable sprays and dispensers. No aerosols are used at all.

### *Our Aims*

*To Reduce- avoid needless consumption of energy, water and materials*
*To Re-use- use it one more time, or, for a secondary purpose*
*To Recycle- put waste to good use*

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